What is claimed:

1. A cold start apparatus for vaporizing fuel before it is supplied to a cylinder of a multi-cylinder internal combustion engine having a fuel supply, and an air intake passageway having a throttle valve comprising a pivotally secured throttle plate disposed therein, said cold start apparatus comprising:

a housing fluidly coupled on one end to the air intake passageway downstream of the location of the throttle;

a cold start fuel injector having an outlet and disposed in said housing;

an idle air conduit fluidly coupled on one end to the air intake passageway, and fluidly coupled on the other end to said housing for delivering air adjacent to the outlet of said cold start fuel injector for intermixing air with fuel ejected from said cold start fuel injector; and

a heating chamber having a longitudinal lumen and disposed at the outlet of said cold start fuel injector for vaporizing the air-fuel mixture before it is delivered to the engine cylinder, wherein said heating chamber includes of a plurality of separately controlled independent heating element sections to vary the temperature across the heating chamber.

2. A cold start apparatus according to claim 1 further comprising an idle air control valve for controlling the amount of air delivered to said housing.

3. A cold start apparatus according to claim 1 wherein said idle air conduit is fluidly coupled to the air intake passageway upstream of the throttle valve.

4. A cold start apparatus according to claim 1 wherein the throttle plate is disposed in a tapered bore within the air intake passageway.

5. A cold start apparatus according to claim 4 wherein said tapered bore further comprises at least one aperture adjacent to and downstream of the throttle plate when the throttle plate is in a closed position, and said idle air conduit being fluidly coupled through said aperture to said air intake passageway as the throttle plate is rotated open passed said aperture.

6. A cold start apparatus according to claim 1 wherein said heating chamber further comprises a spiral depression within said lumen to effect the air-fuel mixture passing through the heating chamber to flow in a circuitously swirling fashion therethrough.

7. A cold start apparatus according to claim 1 wherein said heating chamber further comprises a heated surface configured in the shape of a corkscrew, and disposed within said lumen to cause fluid passing through said lumen to flow in a circuitously swirling fashion therethrough.

8. A cold start apparatus according to claim 1 wherein said heating chamber further comprises an inner surface made of a heat conductive material.

9. A cold start apparatus according to claim 1 further comprising an electronic control unit for controlling the operation of said cold start apparatus, said electronic control unit being responsive to at least the engine temperature and to the amount of current used by said heating chamber.

10. A cold start apparatus for vaporizing fuel before it is supplied to a cylinder of a multi-cylinder internal combustion engine having a fuel supply, and an air intake passageway having a throttle valve comprising a pivotally secured throttle plate disposed in a tapered bore within the air intake passageway, said cold start apparatus comprising:

a housing fluidly coupled on one end to the air intake passageway;

a cold start fuel injector having an outlet and disposed in said housing;

an idle air conduit fluidly coupled on one end to the air intake passageway, and fluidly coupled on the other end to said housing for delivering air adjacent to the outlet of said cold start fuel injector for intermixing air with fuel ejected from said cold start fuel injector; and

a heating chamber having a longitudinal lumen and disposed at the outlet of said cold start fuel injector for vaporizing the air-fuel mixture before it is delivered to the engine cylinder,

wherein said tapered bore in said air intake passageway further comprises a least one aperture adjacent to and downstream of the throttle plate when the throttle plate is in a closed position, and said idle air conduit being fluidly coupled through said aperture to said air intake passageway as the throttle plate is rotated open passed said aperture.

11. A cold start apparatus according to claim 10 wherein said heater chamber further comprises a spiral depression within said lumen to effect the air-fuel mixture passing through said heater chamber to flow in a circuitously swirling fashion therethrough.

12. A cold start apparatus according to claim 10 wherein said heater chamber further comprises a heated surface configured in the shape of a corkscrew, and disposed within said lumen to cause fluid passing through said lumen to flow in a circuitously swirling fashion therethrough.

13. A cold start apparatus according to claim 10 further comprising a n electronic control unit for controlling the operation of said cold start apparatus, said electronic control unit being responsive to at least the engine temperature and to the amount of current used by said heater chamber.

14. A method for reducing automobile exhaust emissions during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater, having a plurality of separately controlled independent heating element sections, fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

initiating power to the heater for a period of time before the engine is started;

supplying fuel to the engine cylinders through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders when the engine is started; and

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors after the engine reaches a pre-established threshold measured by temperature or time.

15. A method for reducing automobile exhaust emissions according to claim **14** further comprising the step of suspending power to the heater while the engine is being cranked during engine start up.

16. A method for reducing automobile exhaust emissions according to claim **14** further comprising the step of retarding the engine's spark until the engine temperature reaches about 60° C.

17. A method for reducing automobile exhaust emissions according to claim **14** further comprising the step of discontinuing power to the heater after switching from said cold start fuel injector to said plurality of fuel injectors.

18. A method for reducing automobile exhaust emissions according to claim **14**, further comprising the step of cleaning deposits off the heater by momentarily spraying fuel on the heater from the cold start fuel injector.

19. A method for reducing automobile exhaust emissions according to claim **18** further comprising the step of simultaneously suspending the fuel supplied from the port fuel injectors by an amount substantially equal to the fuel supplied by the cold start fuel injector.

20. A method for reducing automobile exhaust emissions according to claim **14** wherein said step of switching from fuel supplied by the cold start injector to fuel supplied by each of the port injectors after the engine reaches a temperature of about 60° C.

21. A method for reducing automobile exhaust emissions according to claim **14** further comprising the steps of:

measuring the amount of current used by the heater after the heater has reached a steady state temperature;

comparing the measured steady state current level to a preset threshold current level; and

triggering a malfunction indicator if the measured steady state current level is different from the threshold current level.

22. A method for reducing automobile exhaust emissions according to claim **14** further comprising the step of limiting the amount of air to be mixed with the fuel by controlling the rotational position of the throttle.

23. A method for reducing automobile exhaust emissions according to claim **14** wherein the heater contains a plurality of separate heater elements, said method further comprising the step of varying the power to the separate heater elements to effect different temperatures in the different heater elements.

24. A method for reducing automobile exhaust emissions according to claim **14** wherein the air-fuel mixture is passed over the heater in a circuitously swirling fashion with respect thereto.

25. A method for reducing automobile exhaust emissions during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

initiating power to the heater for a period of time before the engine is started;

supplying fuel through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel mixture over the heater to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders when the engine is started;

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors after the engine reaches a pre-established threshold measured by temperature or time;

discontinuing power to the heater; and

cleaning deposits off the heater by momentarily spraying fuel on the heater from the cold start fuel injector.

26. A method for reducing automobile exhaust emissions according to claim **25** further comprising the step of simultaneously suspending the fuel supplied from the port fuel injectors by an amount substantially equal to the fuel supplied by the cold start fuel injector during the step of cleaning deposits of the heater.

27. A method for reducing automobile exhaust emissions according to claim **25** further comprising the step of retarding the engine's spark until the engine temperature reaches about 60° C.

28. A method for reducing automobile exhaust emissions according to claim **25** further comprising the step of suspending power to the heater while the engine is being cranked during engine start up.

29. A method for reducing automobile exhaust emissions according to claim **25** wherein said step of switching from fuel supplied by the cold start injector to fuel supplied by each of the port injectors after the engine reaches a temperature of about 60° C.

30. A method for reducing automobile exhaust emissions according to claim **25** further comprising the step of limiting the amount of air to be mixed with the fuel by controlling the rotational position of the throttle.

31. A method for reducing automobile exhaust emissions during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

initiating power to the heater for a period of time before the engine is started;

supplying fuel through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel mixture over the heater to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders when the engine is started;

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors after the engine reaches a pre-established threshold measured by temperature or time;

measuring the maximum amount of current used to initially power the heater;

comparing the measured maximum current to a preset threshold current level; and

triggering a malfunction indicator if the measured maximum current is different from the threshold current level.

32. A method for reducing automobile exhaust emissions according to claim **31** further comprising the steps of:

measuring the amount of current used by the heater after the heater has reached a steady state temperature;

comparing the measured maximum current to a preset threshold current level; and

triggering a malfunction indicator if the measured steady state current level is different from the threshold current level.

33. A method for reducing automobile exhaust emissions according to claim **31** further comprising the step of suspending power to the heater while the engine is being cranked during engine start up.

34. A method for reducing automobile exhaust emissions according to claim **31** wherein said step of switching from fuel supplied by the cold start injector to fuel supplied by each of the port injectors after the engine reaches a temperature of about 60° C.

35. A method for reducing automobile exhaust emissions according to claim **31** further comprising the step of limiting the amount of air to be mixed with the fuel by controlling the rotational position of the throttle.

36. A method for reducing automobile exhaust emissions according to claim **31** further comprising the steps of discontinuing power to the heater and cleaning deposits off the heater by momentarily spraying fuel on the heater from the cold start fuel injector.

* * * * *

37. An internal combustion engine having a fuel delivery system having a fuel supply, a cold start apparatus for vaporizing fuel before it is supplied to a cylinder of a multi-cylinder internal combustion engine, and an air intake passageway having a throttle valve including a pivotally secured throttle plate disposed therein, said engine comprising:

a cold start apparatus having a housing fluidly coupled on one end to the air intake passageway downstream of the location of the throttle;

a cold start fuel injector disposed in said housing, wherein said cold start fuel injector has an outlet integral with an idle air conduit;

said idle air conduit fluidly coupled on one end to the air intake passageway, and fluidly coupled on the other end to said housing, for delivering air adjacent to the outlet of said cold start fuel injector, and for intermixing air with fuel ejected from said cold start fuel injector, wherein said idle air conduit is arranged substantially parallel to the air intake passageway and is coupled to said housing downstream of the coupling with the air intake passageway;

a second fuel injector for supplying fuel to the cylinder, wherein said second injector is disposed in the air intake passageway proximate to the cylinder; and

a sensor for measuring total mass air flow positioned in the air intake passageway upstream of the coupling of said idle air conduit to the air intake passageway.

38. An internal combustion engine having a fuel delivery system having a fuel supply, a cold start apparatus for vaporizing fuel before it is supplied to a cylinder of a multi-cylinder internal combustion engine, and an air intake passageway having a throttle valve including a pivotally secured throttle plate disposed therein, said engine comprising:

a cold start apparatus having a housing fluidly coupled on one end to the air intake passageway downstream of the location of the throttle;

a cold start fuel injector disposed in said housing, wherein said cold start fuel injector has an outlet integral with an idle air conduit;

said idle air conduit fluidly coupled on one end to the air intake passageway, and fluidly coupled on the other end to said housing, for delivering air adjacent to the outlet of said cold start fuel injector, and for intermixing air with fuel ejected from said cold start fuel injector, wherein said idle air conduit is arranged substantially parallel to the air intake passageway and is coupled to said housing downstream of the coupling with the air intake passageway;

a second fuel injector for supplying fuel to the cylinder, wherein said second injector is disposed in the air intake passageway proximate to the cylinder;

an ignition mechanism for generating a spark to fire the air-fuel mixture in the cylinder, wherein said ignition mechanism includes a spark plug, an ignition coil operatively connected to the spark plug for generating a voltage and an igniter operatively connected to the ignition coil for controlling the voltage of the ignition coil; and

an engine control mechanism for operatively controlling said fuel delivery system.

39. An internal combustion engine having a fuel delivery system having a fuel supply, a cold start apparatus for vaporizing fuel before it is supplied to a cylinder of a multi-cylinder internal combustion engine, and an air intake passageway having a throttle valve including a pivotally secured throttle plate disposed therein, said engine comprising:

a cold start apparatus having a housing fluidly coupled on one end to the air intake passageway downstream of the location of the throttle;

a cold start fuel injector disposed in said housing, wherein said cold start fuel injector has an outlet integral with an idle air conduit;

said idle air conduit fluidly coupled on one end to the air intake passageway, and fluidly coupled on the other end to said housing, for delivering air adjacent to the outlet of said cold start fuel injector, and for intermixing air with fuel ejected from said cold start fuel injector, wherein said idle air conduit is arranged substantially parallel to the air intake passageway and is coupled to said housing downstream of the coupling with the air intake passageway and coupled to the air intake passageway adjacent to and downstream of the throttle; and

an engine control mechanism for operatively controlling an idle speed of the engine by operatively controlling the throttle valve to control airflow through the air intake passageway and said idle air conduit.

40. An internal combustion engine having a fuel delivery system having a fuel supply, a cold start apparatus for vaporizing fuel before it is supplied to a cylinder of a multi-cylinder internal combustion engine, and an air intake passageway having a throttle valve including a pivotally secured throttle plate disposed therein, said engine comprising:

a cold start apparatus having a housing fluidly coupled on one end to the air intake passageway downstream of the location of the throttle;

a cold start fuel injector disposed in said housing, wherein said cold start fuel injector has an outlet integral with an idle air conduit;

said idle air conduit is fluidly coupled on one end to the air intake passageway, and fluidly coupled on the other end to said housing, for delivering air adjacent to the outlet of said cold start fuel injector, and for intermixing air with fuel ejected from said

cold start fuel injector, wherein said idle air conduit is arranged substantially parallel to the air intake passageway conduit and is coupled to said housing downstream of the coupling with the air intake passageway; and

wherein the throttle valve is disposed within a tapered bore that partially covers the opening of said idle air conduit to control airflow into said idle air conduit relative to a position of the throttle plate to control an idle speed of the engine.

41. The invention as set forth in claim 40 wherein said idle air conduit is coupled to the air intake passageway adjacent to and downstream of the throttle valve in a closed position, and the tapered bore is positioned so that the throttle plate restricts the flow of air into the idle air conduit for a predetermined travel of the throttle plate.

42. The invention as set forth in claim 41 where the tapered bore includes an opening for controlling air flow into said idle air conduit with respect to a position of the throttle plate.

43. A supplemental device for supplying an air-fuel mixture before it is supplied to a cylinder of a multi-cylinder internal combustion engine having a fuel supply, and an air intake passageway having a throttle valve including a pivotally secured throttle plate disposed therein, said cold start apparatus comprising:

a housing fluidly coupled on one end to the air intake passageway downstream of the location of the throttle;

a cold start fuel injector disposed in said housing, wherein said cold start fuel injector has an outlet positioned at an upper end of said fuel injector;

an idle air conduit fluidly coupled on one end to the air intake passageway, and fluidly coupled on the other end to said housing, for delivering air adjacent to the outlet of said cold start fuel injector;

an air swirl device disposed in said housing for swirling the flow of air delivered to said cold start fuel injector;

a heating chamber having a longitudinal lumen and disposed at the outlet of said cold start fuel injector, for vaporizing the air-fuel mixture before it is delivered to the engine cylinder.

44. The invention as set forth in claim 43 further comprising an air-fuel mixer disposed between said heating chamber and the outlet of said cold start fuel injector, for mixing the fuel injected from said cold start fuel injector and the air flowing in a swirling pattern, wherein an interior portion of said housing between said mixer and said heating chamber is generally cone-shaped.

45. The invention as set forth in claim 43 further comprising an air-fuel mixer formed by an interior portion of said housing, wherein an outlet end of said air-fuel mixer is operatively connected to an inlet end of said heating chamber.

46. The invention as set forth in either one of claims 43 or 45, wherein the air-swirl device is a valve for controlling the air flow to maintain an idle speed of the engine.

47. A method for controlling the introduction of a supplemental air-fuel mixture during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold

start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if the engine is in a start mode and supplying power to the heater before an ignition switch is keyed on, if a start mode is detected;

supplying fuel to the engine cylinders through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders when the engine is started; and

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors after the engine reaches a predetermined condition measured by temperature or time.

48. A method as set forth in claim 47 wherein a position of an ignition key in the ignition switch is used to determine if the engine is in a start mode.

49. A method as set forth in claim 47 wherein a signal from either one of a door switch or a seat switch is used to determine if the engine is in a start mode.

50. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, an engine starter, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air

passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if a predetermined condition for the engine starter is met, and supplying power to the heater if the predetermined condition is met;

supplying fuel to the engine cylinders through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders when the engine is started; and

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors if the predetermined condition is not met.

51. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining a predetermined condition of a battery, and supplying power to the heater if the battery meets a predetermined condition;

supplying fuel to the engine cylinders through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders; and

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors if the predetermined condition is not met.

52. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if power is being supplied to the heater for a period of time before the engine is started and retarding an ignition timing for the engine if power is being supplied;

supplying fuel to the engine cylinders through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders when the engine is started; and

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors after the engine reaches a predetermined condition measured by temperature or time.

53. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a supplemental air-fuel mixing device and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

initiating power to the heater for a period of time before the engine is started;

determining if the engine is in a crank mode, and supplying fuel to the engine cylinders through the supplemental mixing device if the engine is not in a crank mode;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders; and

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors if the engine is in a crank mode.

54. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a supplemental air-fuel mixing device having a supplemental injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if the heater meets a predetermined condition before an ignition switch is keyed on and supplying power to the supplemental injector if the predetermined condition is met;

supplying fuel to the engine cylinders through the supplemental injector;

mixing the fuel from the supplemental injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders; and

switching from fuel supplied by the supplemental injector to fuel supplied by the plurality of fuel injectors after the engine reaches a predetermined condition measured by temperature or time.

55. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if the heater meets a predetermined condition before an ignition switch is keyed on;

supplying fuel to the engine cylinders through the cold start injector if the predetermined condition is met;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders; and

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors if the predetermined condition measured is not met.

56. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

detecting a signal to start the engine;

supplying power to the heater before an ignition switch is keyed on if a signal to start the engine is detected, and discontinuing a supply of power to the heater if the engine does not start after a predetermined period of time;

supplying fuel to the engine cylinders through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders; and

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors after the engine reaches a predetermined condition measured by temperature or time.

57. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if heater is receiving power, and injecting fuel from the cold start injector to the heater, if the heater is not receiving power;

supplying fuel to the engine cylinders through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders; and

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors after the engine reaches a predetermined condition measured by temperature or time.

58. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of

fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if heater is receiving power, and injecting fuel from the cold start injector to the heater while reducing fuel supplied from the plurality of fuel injectors, if the heater is not receiving power;

supplying fuel to the engine cylinders through the cold start injector if the heater is receiving power;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders; and

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors after the engine reaches a predetermined condition measured by temperature or time.

59. A supplemental air-fuel mixing device for vaporizing fuel before it is supplied to a cylinder of a multi-cylinder internal combustion engine having a fuel supply, and an air intake passageway having a throttle valve including a pivotally secured throttle plate disposed therein, said device comprising:

a housing fluidly coupled on one end to the air intake passageway downstream of the location of the throttle;

a cold start fuel injector disposed in said housing, wherein said cold start fuel injector has an outlet positioned at an upper end of said fuel injector;

an idle air conduit fluidly coupled on one end to the air intake passageway, and fluidly coupled on the other end to said housing, for delivering air adjacent to the outlet of said cold start fuel injector; and

a heating chamber having a longitudinal lumen and disposed at the outlet of said cold start fuel injector, for vaporizing the air-fuel mixture before it is delivered to the engine cylinder, wherein the heater has an initial electrical resistance, and the electrical resistance decreases as the heater reaches a predetermined temperature.

60. A supplemental air-fuel mixing device for vaporizing fuel before it is supplied to a cylinder of a multi-cylinder internal combustion engine having a fuel supply, and an air intake passageway having a throttle valve including a pivotally secured throttle plate disposed therein, said device comprising:

a housing fluidly coupled on one end to the air intake passageway downstream of the location of the throttle;

a cold start fuel injector disposed in said housing, wherein said cold start fuel injector has an outlet positioned at an upper end of said fuel injector;

an idle air conduit fluidly coupled on one end to the air intake passageway, and fluidly coupled on the other end to said housing, for delivering air adjacent to the outlet of said cold start fuel injector;

a heating chamber having a longitudinal lumen and disposed at the outlet of said cold start fuel injector, for vaporizing the air-fuel mixture before it is delivered to the engine cylinder;

said heating chamber including an inner surface member, a heated surface member adjacent said inner surface member and having electric current flowing therethrough, an outer surface member adjacent said heated surface member, and a

spring positioned between said heated surface member and said outer surface member that biases said heated surface member towards said inner surface member.

61. A device for supplying an air-fuel mixture before it is supplied to a cylinder of a multi-cylinder internal combustion engine having a fuel supply, and an air intake passageway having a throttle valve including a pivotally secured throttle plate disposed therein, said cold start apparatus comprising:

a housing fluidly coupled on one end to the air intake passageway downstream of the location of the throttle;

an injector disposed in said housing, wherein said injector has an outlet positioned at an upper end of said fuel injector;

an idle air conduit fluidly coupled on one end to the air intake passageway, and fluidly coupled on the other end to said housing, for delivering air adjacent to the outlet of said injector;

an air swirl device disposed in said housing for swirling the flow of air delivered to said cold start fuel injector;

a heating chamber having a longitudinal lumen and disposed at the outlet of said cold start fuel injector, for vaporizing the air-fuel mixture before it is delivered to the engine cylinder.

62. The invention as set forth in claim 61 further comprising an air-fuel mixer disposed between said heating chamber and the outlet of said injector, for mixing the fuel injected from said injector and the air flowing in a swirling pattern, wherein an interior portion of said housing between said mixer and said heating chamber is generally cone-shaped.

63. The invention as set forth in claim 61 further comprising an air-fuel mixer formed by an interior portion of said housing, wherein an outlet end of said air-fuel mixer is operatively connected to an inlet end of said heating chamber.

64. The invention as set forth in either one of claims 61 or 63, wherein the air-swirl device is a valve for controlling the air flow to maintain an idle speed of the engine.

65. A method for controlling the introduction of a supplemental air-fuel mixture during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if the engine is in a start mode and supplying power to the heater before an ignition switch is keyed on, if a start mode is detected;

supplying fuel to the engine cylinders through the injectors;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized; and

supplying the vaporized air-fuel mixture to the engine cylinders when the engine is started.

66. A method as set forth in claim 64 wherein a position of an ignition key in the ignition switch is used to determine if the engine is in a start mode.

67. A method as set forth in claim 65 wherein a signal from either one of a door switch or a seat switch is used to determine if the engine is in a start mode.

68. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, an engine starter, a plurality of fuel injectors located adjacent to separate engine cylinders, a fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if a predetermined condition for the engine starter is met, and supplying power to the heater if the predetermined condition is met;

supplying fuel to the engine cylinders through the injectors;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized; and

supplying the vaporized air-fuel mixture to the engine cylinders when the engine is started.

69. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining a predetermined condition of a battery, and supplying power to the heater if the battery meets a predetermined condition;

supplying fuel to the engine cylinders through the injectors;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized; and

supplying the vaporized air-fuel mixture to the engine cylinders.

70. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if the heater meets a predetermined condition before an ignition switch is keyed on and supplying power to the supplemental injector if the predetermined condition is met;

supplying fuel to the engine cylinders through the supplemental injector;

mixing the fuel from the injectors with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized; and

supplying the vaporized air-fuel mixture to the engine cylinders.

71. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if the heater meets a predetermined condition before an ignition switch is keyed on;

supplying fuel to the engine cylinders through the injectors if the predetermined condition is met;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized; and

supplying the vaporized air-fuel mixture to the engine cylinders.

72. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

detecting a signal to start the engine;

supplying power to the heater before an ignition switch is keyed on if a signal to start the engine is detected, and discontinuing a supply of power to the heater if the engine does not start after a predetermined period of time;

supplying fuel to the engine cylinders through the injectors;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized; and

supplying the vaporized air-fuel mixture to the engine cylinders.

73. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if heater is receiving power, and injecting fuel from the cold start injector to the heater, if the heater is not receiving power;

supplying fuel to the engine cylinders through the injectors;

mixing the fuel from the injectors with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized; and

supplying the vaporized air-fuel mixture to the engine cylinders.

74. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if heater is receiving power, and injecting fuel from the cold start injector to the heater while reducing fuel supplied from the plurality of fuel injectors, if the heater is not receiving power;

supplying fuel to the engine cylinders through the cold start injector if the heater is receiving power;

mixing the fuel from the injectors with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized; and

supplying the vaporized air-fuel mixture to the engine cylinders.

75. An air-fuel mixing device for vaporizing fuel before it is supplied to a cylinder of a multi-cylinder internal combustion engine having a fuel supply, and an air intake passageway having a throttle valve including a pivotally secured throttle plate disposed therein, said device comprising:

a housing fluidly coupled on one end to the air intake passageway downstream of the location of the throttle;

a cold start fuel injector disposed in said housing, wherein said cold start fuel injector has an outlet positioned at an upper end of said fuel injector;

an idle air conduit fluidly coupled on one end to the air intake passageway, and fluidly coupled on the other end to said housing, for delivering air adjacent to the outlet of said cold start fuel injector; and

a heating chamber having a longitudinal lumen and disposed at the outlet of said cold start fuel injector, for vaporizing the air-fuel mixture before it is delivered to the engine cylinder, wherein the heater has an initial electrical resistance, and the electrical resistance decreases as the heater reaches a predetermined temperature.

76. An air-fuel mixing device for vaporizing fuel before it is supplied to a cylinder of a multi-cylinder internal combustion engine having a fuel supply, and an air intake passageway having a throttle valve including a pivotally secured throttle plate disposed therein, said device comprising:

a housing fluidly coupled on one end to the air intake passageway downstream of the location of the throttle;

a cold start fuel injector disposed in said housing, wherein said cold start fuel injector has an outlet positioned at an upper end of said fuel injector;

an idle air conduit fluidly coupled on one end to the air intake passageway, and fluidly coupled on the other end to said housing, for delivering air adjacent to the outlet of said cold start fuel injector;

a heating chamber having a longitudinal lumen and disposed at the outlet of said cold start fuel injector, for vaporizing the air-fuel mixture before it is delivered to the engine cylinder;

said heating chamber including an inner surface member, a heated surface member adjacent said inner surface member and having electric current flowing therethrough, an outer surface member adjacent said heated surface member, and a spring positioned between said heated surface member and said outer surface member that biases said heated surface member towards said inner surface member.

77. A method as set forth in either one of claims 54, 55 or 57 including a step of warming up the heater prior to said step of determining if the heater meets a predetermined condition.

78. A method as set forth in either one of claims 57, 58 or 72 including a step of determining if the heater is in a cleaning mode and supplying air to the heater for removing the fuel from the heater if the heater is in a cleaning mode.

79. A system as set forth in either one of claims 40, 41 or 42 wherein the tapered bore extends between an upstream side and a downstream side of the throttle valve.

80. A system as set forth in claim 42 wherein the opening for controlling air flow into said idle air conduit is a longitudinally extending slit.

81. A method as set forth in either one of claims 56, 57, or 58 including a step of executing a cleaning mode if an air-fuel mixture is not lean.

82. A method as set forth in claim 52 including a step of determining if a predetermined engine condition is met and retarding the ignition timing a predetermined amount if the predetermined engine condition is met.

83. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if the engine is in a crank mode, and supplying fuel to the engine cylinder from the plurality of fuel injectors if the engine is in a crank mode;

determining if the engine is in an idle mode if the engine is not in the crank mode and supplying fuel to the engine cylinder from the cold start fuel injector if the engine is in the idle mode;

supplying fuel to the engine cylinders through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders; and

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors after the engine reaches a predetermined condition measured by temperature or time.

84. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if the engine is in a idle mode, and supplying fuel to the engine cylinders through the cold start injector if the engine is in an idle mode;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders; and

determining if the engine is warmed up and switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors if the engine is warmed up.

85. A method as set forth in claim 84 including a step of determining if the engine is warmed up and beginning a port fuel injection mode to supply fuel to the engine cylinder if the engine is warmed up.

86. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if the engine is in a crank mode and supplying fuel to the engine cylinder from the plurality of fuel injectors if the engine is in a crank mode;

determining if the crank mode has ended and supplying fuel to the engine cylinder for a predetermined period of time through the cold start injector if the crank mode has ended;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders; and

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors after the engine reaches a predetermined condition measured by temperature or time.

87. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

initiating power to the heater for a predetermined period of time before the engine is started;

supplying fuel to the engine cylinders through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders; and

determining if the engine is in an idle mode and adjusting an amount of fuel supplied to the engine from either one of the plurality of injectors or through the cold start injector based on either one of a predetermined engine coolant temperature condition or engine exhaust gas temperature condition if the engine is in an idle mode;

88. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

initiating power to the heater for a predetermined period of time before the engine is started;

supplying fuel to the engine cylinders through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders; and

determining if the engine is in an idle mode and adjusting an amount of fuel supplied to the engine from either one of the plurality of injectors or through the cold start injector and adjusting an ignition timing based on either one of a predetermined engine coolant temperature condition or engine exhaust gas temperature condition if the engine is in an idle mode.

89. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if the engine is in an idle mode and warming up, and supplying fuel to the engine through the cold start injector while the engine is in the idle mode and warming up;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinder; and

determining if the engine is warmed up and adjusting the supply of fuel to the engine from the cold start injector to the plurality of fuel injectors at a predetermined rate if the engine is warmed up.

90. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

initiating power to the heater for a predetermined period of time before the engine is started;

supplying fuel to the engine cylinders through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinder; and

determining if a crank mode is over and the engine is in an idle mode and supplying a predetermined amount of fuel to the engine from the plurality of fuel injectors according to a predetermined engine coolant fluid temperature, while the engine is in the idle mode.

91. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining whether to supply fuel to the engine from the cold start fuel injector or the plurality of fuel injectors based on a predetermined condition of the engine, wherein at an idle condition, an ignition timing is delayed while supplying fuel from the cold start fuel injector;

supplying fuel to the engine cylinders through the cold start injector based on the predetermined condition of the engine;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinder; and

supplying a predetermined amount of fuel to the engine from the plurality of fuel injectors based on the predetermined condition of the engine.

92. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of

fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

detecting a signal to start the engine and supplying power to the heater before an ignition switch is keyed on, if a signal to start the engine is detected and discontinuing supplying power to the heater if the ignition switch is not keyed on within a predetermined period of time;

supplying fuel to the engine cylinders through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinder; and

supplying a predetermined amount of fuel to the engine from the plurality of fuel injectors based on the predetermined condition of the engine.

93. An air-fuel mixing device for an engine comprising:

a housing fluidly coupled on one end to an air intake passageway for the engine;

a fuel injector disposed within the housing for injecting fuel from an outlet port, wherein the outlet port is positioned at an upper end the said fuel injector;

an idle air conduit fluidly coupled on one end to the air intake passageway, and fluidly coupled on the other end to said housing, for delivering air adjacent to the outlet of said cold start fuel injector;

an air swirl device disposed in said housing for swirling the flow of air delivered to said cold start fuel injector;

a heating chamber having a longitudinal lumen and positioned at the outlet of said cold start fuel injector, for heating the air-fuel mixture before it is delivered to the engine cylinder.

94. The invention as set forth in claim 93 further comprising a mixer disposed between the heating chamber and the fuel outlet portion of the injector for mixing the fuel injected from the outlet of the injector and the swirled air flow.

95. An air-fuel mixing device for vaporizing fuel before it is supplied to a cylinder of a multi-cylinder internal combustion engine having a fuel supply, and an air intake passageway having a throttle valve including a pivotally secured throttle plate disposed therein, said device comprising:

a housing fluidly coupled on one end to the air intake passageway downstream of the location of the throttle;

a cold start fuel injector disposed in said housing, wherein said cold start fuel injector has an outlet positioned at an upper end of said fuel injector;

a heater having a tubular shape and disposed at the outlet of said cold start fuel injector, for heating the air-fuel mixture within an interior chamber of the heater before it is delivered to the engine cylinder; and

an idle air conduit fluidly coupled on one end to the air intake passageway, and fluidly coupled on the other end to said housing, for delivering a swirling flow of air to said heater.

96. A cold start apparatus as set forth in claim 95 including a mixer disposed between the outlet of said cold start injector and said heater for mixing the injected fuel and swirling air before the air-fuel mixture enters said heater.

97. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if the heater meets a predetermined condition before the engine begins a crank mode and supplying power to the injector if the predetermined condition is met;

supplying fuel to the engine cylinders through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders; and

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors after the engine reaches a predetermined condition measured by temperature or time.

98. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if the heater meets a predetermined condition before a cranking mode of the engine and supplying power to the injector if the predetermined condition is met;

supplying fuel to the engine cylinders through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders; and

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors if the cranking mode of the engine is over and the heater does not meet the predetermined condition.

99. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, and an air passageway having a pivotally secured throttle valve disposed therein, said method comprising the steps of:

determining if the heater meets a predetermined condition before the engine is started and supplying power to the injector if the predetermined condition is met;

supplying fuel to the engine cylinders through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders; and

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors if the predetermined condition is not met.

100. A method for controlling an internal combustion engine during the cold start of a multi-cylinder internal combustion engine having a fuel supply, a plurality of fuel injectors located adjacent to separate engine cylinders, a cold start fuel injector and heater fluidly coupled to the engine cylinders, an air intake passageway having a pivotally secured throttle valve disposed therein and a catalytic converter disposed in an air exhaust passageway, said method comprising the steps of:

determining if the catalytic converter meets a predetermined condition and supplying power to the injector if the predetermined condition is met;

supplying fuel to the engine cylinders through the cold start injector;

mixing the fuel from the cold start injector with air to produce an air-fuel mixture;

passing said air-fuel over said heater elements to cause the fuel to be vaporized;

supplying the vaporized air-fuel mixture to the engine cylinders; and

switching from fuel supplied by the cold start injector to fuel supplied by the plurality of fuel injectors if the predetermined condition is not met.